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 Met Ala His Ala Ser Val Ala
 1 5
 tct ctt atg aga aca ata gaa tct ctc ttg aca ttc aat tcg ccg atg 161
 Ser Leu Met Arg Thr Ile Glu Ser Leu Leu Thr Phe Asn Ser Pro Met
 10 15 20
 caa tct cta tcc tgt gat cac aga gaa gaa ctt tgc gct ctt cgt gaa 209
 Gln Ser Leu Ser Cys Asp His Arg Glu Glu Leu Cys Ala Leu Arg Glu
 25 30 35

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| aaa gtt agt tcc ctg gaa gta ttt gtc aag aac ttt gag aaa aac aat | 257 |
| Lys Val Ser Ser Leu Glu Val Phe Val Lys Asn Phe Glu Lys Asn Asn | |
| 40 45 50 55 | |
| gtt ttt ggg gaa atg acg gat ttt gaa gta gag gta aga gaa gtt gca | 305 |
| Val Phe Gly Glu Met Thr Asp Phe Glu Val Glu Val Arg Glu Val Ala | |
| 60 65 70 | |
| agt gct gct gaa tac aca att caa ctg aga cta aca gga act gta ctg | 353 |
| Ser Ala Ala Glu Tyr Thr Ile Gln Leu Arg Leu Thr Gly Thr Val Leu | |
| 75 80 85 | |
| gga gaa aat aaa agc cag aaa aaa aag gcg cgt cga agg ttt cgt caa | 401 |
| Gly Glu Asn Lys Ser Gln Lys Lys Lys Ala Arg Arg Arg Phe Arg Gln | |
| 90 95 100 | |
| agc ctg caa caa gta gca gag gac atg gat cat atc tgg aaa gag tcg | 449 |
| Ser Leu Gln Gln Val Ala Glu Asp Met Asp His Ile Trp Lys Glu Ser | |
| 105 110 115 | |
| aca aag atc caa gat aaa gga aaa caa gta tca aag gaa tca ttg gtt | 497 |
| Thr Lys Ile Gln Asp Lys Gly Lys Gln Val Ser Lys Glu Ser Leu Val | |
| 120 125 130 135 | |
| cat gat ttt tca agt tca aca aac gat att ttg aag gtt aag aac aat | 545 |
| His Asp Phe Ser Ser Ser Thr Asn Asp Ile Leu Lys Val Lys Asn Asn | |
| 140 145 150 | |
| atg gtt gga cgt gat gat caa agg aaa cag ttg tta gaa gat ctg act | 593 |
| Met Val Gly Arg Asp Asp Gln Arg Lys Gln Leu Leu Glu Asp Leu Thr | |
| 155 160 165 | |
| aga agc tac tct ggg gaa ccc aaa gtc atc ccg att gtc ggg atg gga | 641 |
| Arg Ser Tyr Ser Gly Glu Pro Lys Val Ile Pro Ile Val Gly Met Gly | |
| 170 175 180 | |
| ggc ata ggt aaa aca acc tta gca aaa gaa gtt tac aat gat gaa tca | 689 |
| Gly Ile Gly Lys Thr Thr Leu Ala Lys Glu Val Tyr Asn Asp Glu Ser | |
| 185 190 195 | |
| att cta tgc cgt ttt gat gtt cat gcc tgg gct acc ata tct caa cag | 737 |
| Ile Leu Cys Arg Phe Asp Val His Ala Trp Ala Thr Ile Ser Gln Gln | |
| 200 205 210 215 | |
| cac aac aaa aag gaa att ttg ctg ggc ctt ctg cat tcc aca atc aaa | 785 |
| His Asn Lys Lys Glu Ile Leu Leu Gly Leu Leu His Ser Thr Ile Lys | |
| 220 225 230 | |
| atg gat gac agg gtt aag atg att ggt gaa gca gag cta gca gac atg | 833 |
| Met Asp Asp Arg Val Lys Met Ile Gly Glu Ala Glu Leu Ala Asp Met | |
| 235 240 245 | |
| tta cag aaa agt tta aag aga aag agg tac tta att gtc ttg gat gat | 881 |
| Leu Gln Lys Ser Leu Lys Arg Lys Arg Tyr Leu Ile Val Leu Asp Asp | |
| 250 255 260 | |
| atc tgg agt tgt gaa gtg tgg gat ggc gtg aga cga tgc ttt cca act | 929 |
| Ile Trp Ser Cys Glu Val Trp Asp Gly Val Arg Arg Cys Phe Pro Thr | |
| 265 270 275 | |

| | |
|---|------|
| gaa gac aat gca ggg agt cga ata ctg ttg act acc cgt aat gat gaa | 977 |
| Glu Asp Asn Ala Gly Ser Arg Ile Leu Leu Thr Thr Arg Asn Asp Glu | |
| 280 285 290 295 | |
| gta gct tgt tat gct ggt gta gag aat ttt tct ttg cgg atg agc ttc | 1025 |
| Val Ala Cys Tyr Ala Gly Val Glu Asn Phe Ser Leu Arg Met Ser Phe | |
| 300 305 310 | |
| atg gat caa gat gag agt tgg agt ctt ttc aaa agt gca gca ttt tca | 1073 |
| Met Asp Gln Asp Glu Ser Trp Ser Leu Phe Lys Ser Ala Ala Phe Ser | |
| 315 320 325 | |
| agt gaa gca tta cca tat gag ttc gag act gtt gga aag caa atc gca | 1121 |
| Ser Glu Ala Leu Pro Tyr Glu Phe Glu Thr Val Gly Lys Gln Ile Ala | |
| 330 335 340 | |
| gat gaa tgt cac ggg tta cca cta act att gtc gtg gtt gca ggg ctt | 1169 |
| Asp Glu Cys His Gly Leu Pro Leu Thr Ile Val Val Val Ala Gly Leu | |
| 345 350 355 | |
| ctc aaa tct aaa agg aca ata gaa gat tgg aaa act gtt gct aaa gat | 1217 |
| Leu Lys Ser Lys Arg Thr Ile Glu Asp Trp Lys Thr Val Ala Lys Asp | |
| 360 365 370 375 | |
| gtc aag tca ttc gtc aca aat gat cct gat gaa cga tgt tca cgt gtg | 1265 |
| Val Lys Ser Phe Val Thr Asn Asp Pro Asp Glu Arg Cys Ser Arg Val | |
| 380 385 390 | |
| ctt ggg ttg agt tac gat cac ttg aca agc gat cta aaa aca tgt ctt | 1313 |
| Leu Gly Leu Ser Tyr Asp His Leu Thr Ser Asp Leu Lys Thr Cys Leu | |
| 395 400 405 | |
| ctg cat ttc gga att ttt cca gaa gac agt gat att cca gtg aag aat | 1361 |
| Leu His Phe Gly Ile Phe Pro Glu Asp Ser Asp Ile Pro Val Lys Asn | |
| 410 415 420 | |
| ttg atg aga tca tgg atg gct gag ggg ttc ctg aag ttg gaa aat gat | 1409 |
| Leu Met Arg Ser Trp Met Ala Glu Gly Phe Leu Lys Leu Glu Asn Asp | |
| 425 430 435 | |
| ttg gaa gga gag gtt gag aag tgt ttg caa gag ctt gtc gat aga tgt | 1457 |
| Leu Glu Gly Glu Val Glu Lys Cys Leu Gln Glu Leu Val Asp Arg Cys | |
| 440 445 450 455 | |
| cta gtc ctc gtc agc aag aga agt cga gat gga aca aaa att aga tca | 1505 |
| Leu Val Leu Val Ser Lys Arg Ser Arg Asp Gly Thr Lys Ile Arg Ser | |
| 460 465 470 | |
| tgt aag gtt cat gat cta ata tat gac ctg tgc gtg aga gaa gtt caa | 1553 |
| Cys Lys Val His Asp Leu Ile Tyr Asp Leu Cys Val Arg Glu Val Gln | |
| 475 480 485 | |
| agg gag aac att ttt atc atg aac gac att gtt ctt gac gta tca tat | 1601 |
| Arg Glu Asn Ile Phe Ile Met Asn Asp Ile Val Leu Asp Val Ser Tyr | |
| 490 495 500 | |
| cca gaa tgt tca tat ctc tgt atg tat aaa atg cag ccc ttt aag cgc | 1649 |
| Pro Glu Cys Ser Tyr Leu Cys Met Tyr Lys Met Gln Pro Phe Lys Arg | |
| 505 510 515 | |
| gtg act ggt gat gaa att aat tat tgt ccc tat ggt ctt tat agg gct | 1697 |

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| | | | | | |
|---|------|-----|-----|-----|--|
| Val Thr Gly Asp Glu Ile Asn Tyr Cys Pro Tyr Gly Leu Tyr Arg Ala | 520 | 525 | 530 | 535 | |
| ctt ctt acc cct gta aat cgt cag ttg aga gat cat gac aac aac aat | 1745 | | | | |
| Leu Leu Thr Pro Val Asn Arg Gln Leu Arg Asp His Asp Asn Asn Asn | 540 | 545 | 550 | | |
| ctt ttg aaa cga acc cat tct gtt ttc tct ttt cat ctt gag cct tta | 1793 | | | | |
| Leu Leu Lys Arg Thr His Ser Val Phe Ser Phe His Leu Glu Pro Leu | 555 | 560 | 565 | | |
| tat tat gtt ctc aaa tca gag gtt gtt cat ttc aaa tta ctc aaa gtc | 1841 | | | | |
| Tyr Tyr Val Leu Lys Ser Glu Val Val His Phe Lys Leu Leu Lys Val | 570 | 575 | 580 | | |
| ttg gag ctg aga cac aga cag att gat ggt ttc cct cga gag ata cta | 1889 | | | | |
| Leu Glu Leu Arg His Arg Gln Ile Asp Gly Phe Pro Arg Glu Ile Leu | 585 | 590 | 595 | | |
| agc ctc atc tgg ttg agg tac cta tca ttg ttc agc tat ggg aat ttc | 1937 | | | | |
| Ser Leu Ile Trp Leu Arg Tyr Leu Ser Leu Phe Ser Tyr Gly Asn Phe | 600 | 605 | 610 | 615 | |
| gat gta cct cca gaa att tgc agg tta tgg aat ctg cag aca ttc att | 1985 | | | | |
| Asp Val Pro Pro Glu Ile Cys Arg Leu Trp Asn Leu Gln Thr Phe Ile | 620 | 625 | 630 | | |
| gtt caa cgg ttt cga tca gat ata ata att ttt gct gag gaa att tgg | 2033 | | | | |
| Val Gln Arg Phe Arg Ser Asp Ile Ile Ile Phe Ala Glu Glu Ile Trp | 635 | 640 | 645 | | |
| gaa cta atg caa tta agg cat ctt aaa ctg ccc aga ttt tat ttg cca | 2081 | | | | |
| Glu Leu Met Gln Leu Arg His Leu Lys Leu Pro Arg Phe Tyr Leu Pro | 650 | 655 | 660 | | |
| gat tgc cca agt gga tct gtt gac aaa gga agg cac ttg gat ttt tca | 2129 | | | | |
| Asp Cys Pro Ser Gly Ser Val Asp Lys Gly Arg His Leu Asp Phe Ser | 665 | 670 | 675 | | |
| aac tta caa act att tct tac ttg tct cca cgt tgt tgc acg aag gag | 2177 | | | | |
| Asn Leu Gln Thr Ile Ser Tyr Leu Ser Pro Arg Cys Cys Thr Lys Glu | 680 | 685 | 690 | 695 | |
| gtt att atg ggg att cag aat gtc aaa aaa tta gga atc agt gga aat | 2225 | | | | |
| Val Ile Met Gly Ile Gln Asn Val Lys Lys Leu Gly Ile Ser Gly Asn | 700 | 705 | 710 | | |
| aag gat gac tat aaa agt ttt cgg gac tct ggg ctt ccc aac aat ctt | 2273 | | | | |
| Lys Asp Asp Tyr Lys Ser Phe Arg Asp Ser Gly Leu Pro Asn Asn Leu | 715 | 720 | 725 | | |
| gtc tat ctg cag caa ctt gaa ata ttg agt ctt ata tct gtt gat tat | 2321 | | | | |
| Val Tyr Leu Gln Gln Leu Glu Ile Leu Ser Leu Ile Ser Val Asp Tyr | 730 | 735 | 740 | | |
| agc ctt ttg cca gtg atc att tca agt gca aaa gct ttt cca gca acg | 2369 | | | | |
| Ser Leu Leu Pro Val Ile Ile Ser Ser Ala Lys Ala Phe Pro Ala Thr | 745 | 750 | 755 | | |
| ctc aag aag ttg aag ttg gaa aga act tat cta agc tgg tca tac ttg | 2417 | | | | |
| Leu Lys Lys Leu Lys Leu Glu Arg Thr Tyr Leu Ser Trp Ser Tyr Leu | | | | | |

| 760 | 765 | 770 | 775 | |
|---|-----|-----|-----|------|
| gac atc ata gct gag ttg cct aac ctt gag gtg ctg aag ctg atg gat | | | | 2465 |
| Asp Ile Ile Ala Glu Leu Pro Asn Leu Glu Val Leu Lys Leu Met Asp | | | | |
| | 780 | 785 | 790 | |
| gac gct tgt tgt ggt gaa gaa tgg cat cca att gtt atg gga ttt aat | | | | 2513 |
| Asp Ala Cys Cys Gly Glu Glu Trp His Pro Ile Val Met Gly Phe Asn | | | | |
| | 795 | 800 | 805 | |
| cga ttg aag ctt ttg cta att aaa tat agt ttt ctc aag ttc tgg aaa | | | | 2561 |
| Arg Leu Lys Leu Leu Leu Ile Lys Tyr Ser Phe Leu Lys Phe Trp Lys | | | | |
| | 810 | 815 | 820 | |
| gcc aca aat gac aat ttt cct gtc ctt gag cgc ctc atg att aga agt | | | | 2609 |
| Ala Thr Asn Asp Asn Phe Pro Val Leu Glu Arg Leu Met Ile Arg Ser | | | | |
| | 825 | 830 | 835 | |
| tgc aaa aat ttg aaa gag ata ccc att gag ttt gca gat ata cac aca | | | | 2657 |
| Cys Lys Asn Leu Lys Glu Ile Pro Ile Glu Phe Ala Asp Ile His Thr | | | | |
| | 840 | 845 | 850 | 855 |
| cta cag ctg att gag tta aga gag tgt cct ccc aaa ctt ggg gaa tct | | | | 2705 |
| Leu Gln Leu Ile Glu Leu Arg Glu Cys Pro Pro Lys Leu Gly Glu Ser | | | | |
| | 860 | 865 | 870 | |
| gct gca cga att cag aaa gaa caa gaa gac ctc gga aac aac cct gtg | | | | 2753 |
| Ala Ala Arg Ile Gln Lys Glu Gln Glu Asp Leu Gly Asn Asn Pro Val | | | | |
| | 875 | 880 | 885 | |
| gat gtt cgt atc tca aat cca ttg aag gag agt gat tct gat tca gaa | | | | 2801 |
| Asp Val Arg Ile Ser Asn Pro Leu Lys Glu Ser Asp Ser Asp Ser Glu | | | | |
| | 890 | 895 | 900 | |
| gaa cat tag gaaaggatct caaggccaga aggattgaac tcttgggatt | | | | 2850 |
| Glu His | | | | |
| | 905 | | | |
| tcatttcggc cctctatcac aaaataccac taaattatcg gtttcaagca atgtgtgact | | | | 2910 |
| tccaaggaga tgtgatatct tttgtgttgt aacatatttt tgagttgtac tgattccctt | | | | 2970 |
| cttcccttct ctttttatgt aactttacta attcaacttc aagtactagc agaccacatg | | | | 3030 |
| gttgattgtg atcgagtttg atgattatatt tatacgatga gacaaccagt ttagtttttaa | | | | 3090 |
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Glu Leu Cys Ala Leu Arg Glu Lys Val Ser Ser Leu Glu Val Phe Val
35 40 45

Lys Asn Phe Glu Lys Asn Asn Val Phe Gly Glu Met Thr Asp Phe Glu
50 55 60

Val Glu Val Arg Glu Val Ala Ser Ala Ala Glu Tyr Thr Ile Gln Leu
65 70 75 80

Arg Leu Thr Gly Thr Val Leu Gly Glu Asn Lys Ser Gln Lys Lys Lys
85 90 95

Ala Arg Arg Arg Phe Arg Gln Ser Leu Gln Gln Val Ala Glu Asp Met
100 105 110

Asp His Ile Trp Lys Glu Ser Thr Lys Ile Gln Asp Lys Gly Lys Gln
115 120 125

Val Ser Lys Glu Ser Leu Val His Asp Phe Ser Ser Ser Thr Asn Asp
130 135 140

Ile Leu Lys Val Lys Asn Asn Met Val Gly Arg Asp Asp Gln Arg Lys
145 150 155 160

Gln Leu Leu Glu Asp Leu Thr Arg Ser Tyr Ser Gly Glu Pro Lys Val
165 170 175

Ile Pro Ile Val Gly Met Gly Gly Ile Gly Lys Thr Thr Leu Ala Lys
180 185 190

Glu Val Tyr Asn Asp Glu Ser Ile Leu Cys Arg Phe Asp Val His Ala
195 200 205

Trp Ala Thr Ile Ser Gln Gln His Asn Lys Lys Glu Ile Leu Leu Gly
210 215 220

Leu Leu His Ser Thr Ile Lys Met Asp Asp Arg Val Lys Met Ile Gly
225 230 235 240

Glu Ala Glu Leu Ala Asp Met Leu Gln Lys Ser Leu Lys Arg Lys Arg
245 250 255

Tyr Leu Ile Val Leu Asp Asp Ile Trp Ser Cys Glu Val Trp Asp Gly
260 265 270

Val Arg Arg Cys Phe Pro Thr Glu Asp Asn Ala Gly Ser Arg Ile Leu
275 280 285

Leu Thr Thr Arg Asn Asp Glu Val Ala Cys Tyr Ala Gly Val Glu Asn
290 295 300

Phe Ser Leu Arg Met Ser Phe Met Asp Gln Asp Glu Ser Trp Ser Leu
305 310 315 320

Phe Lys Ser Ala Ala Phe Ser Ser Glu Ala Leu Pro Tyr Glu Phe Glu
325 330 335

Thr Val Gly Lys Gln Ile Ala Asp Glu Cys His Gly Leu Pro Leu Thr
340 345 350

Ile Val Val Val Ala Gly Leu Leu Lys Ser Lys Arg Thr Ile Glu Asp

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| | | |
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| Trp Lys Thr Val Ala Lys Asp Val Lys Ser Phe Val Thr Asn Asp Pro 370 375 380 | | |
| Asp Glu Arg Cys Ser Arg Val Leu Gly Leu Ser Tyr Asp His Leu Thr 385 390 395 400 | | |
| Ser Asp Leu Lys Thr Cys Leu Leu His Phe Gly Ile Phe Pro Glu Asp 405 410 415 | | |
| Ser Asp Ile Pro Val Lys Asn Leu Met Arg Ser Trp Met Ala Glu Gly 420 425 430 | | |
| Phe Leu Lys Leu Glu Asn Asp Leu Glu Gly Glu Val Glu Lys Cys Leu 435 440 445 | | |
| Gln Glu Leu Val Asp Arg Cys Leu Val Leu Val Ser Lys Arg Ser Arg 450 455 460 | | |
| Asp Gly Thr Lys Ile Arg Ser Cys Lys Val His Asp Leu Ile Tyr Asp 465 470 475 480 | | |
| Leu Cys Val Arg Glu Val Gln Arg Glu Asn Ile Phe Ile Met Asn Asp 485 490 495 | | |
| Ile Val Leu Asp Val Ser Tyr Pro Glu Cys Ser Tyr Leu Cys Met Tyr 500 505 510 | | |
| Lys Met Gln Pro Phe Lys Arg Val Thr Gly Asp Glu Ile Asn Tyr Cys 515 520 525 | | |
| Pro Tyr Gly Leu Tyr Arg Ala Leu Leu Thr Pro Val Asn Arg Gln Leu 530 535 540 | | |
| Arg Asp His Asp Asn Asn Asn Leu Leu Lys Arg Thr His Ser Val Phe 545 550 555 560 | | |
| Ser Phe His Leu Glu Pro Leu Tyr Tyr Val Leu Lys Ser Glu Val Val 565 570 575 | | |
| His Phe Lys Leu Leu Lys Val Leu Glu Leu Arg His Arg Gln Ile Asp 580 585 590 | | |
| Gly Phe Pro Arg Glu Ile Leu Ser Leu Ile Trp Leu Arg Tyr Leu Ser 595 600 605 | | |
| Leu Phe Ser Tyr Gly Asn Phe Asp Val Pro Pro Glu Ile Cys Arg Leu 610 615 620 | | |
| Trp Asn Leu Gln Thr Phe Ile Val Gln Arg Phe Arg Ser Asp Ile Ile 625 630 635 640 | | |
| Ile Phe Ala Glu Glu Ile Trp Glu Leu Met Gln Leu Arg His Leu Lys 645 650 655 | | |
| Leu Pro Arg Phe Tyr Leu Pro Asp Cys Pro Ser Gly Ser Val Asp Lys 660 665 670 | | |
| Gly Arg His Leu Asp Phe Ser Asn Leu Gln Thr Ile Ser Tyr Leu Ser 675 680 685 | | |

Pro Arg Cys Cys Thr Lys Glu Val Ile Met Gly Ile Gln Asn Val Lys
690 695 700

Lys Leu Gly Ile Ser Gly Asn Lys Asp Asp Tyr Lys Ser Phe Arg Asp
705 710 715 720

Ser Gly Leu Pro Asn Asn Leu Val Tyr Leu Gln Gln Leu Glu Ile Leu
725 730 735

Ser Leu Ile Ser Val Asp Tyr Ser Leu Leu Pro Val Ile Ile Ser Ser
740 745 750

Ala Lys Ala Phe Pro Ala Thr Leu Lys Lys Leu Lys Leu Glu Arg Thr
755 760 765

Tyr Leu Ser Trp Ser Tyr Leu Asp Ile Ile Ala Glu Leu Pro Asn Leu
770 775 780

Glu Val Leu Lys Leu Met Asp Asp Ala Cys Cys Gly Glu Glu Trp His
785 790 795 800

Pro Ile Val Met Gly Phe Asn Arg Leu Lys Leu Leu Ile Lys Tyr
805 810 815

Ser Phe Leu Lys Phe Trp Lys Ala Thr Asn Asp Asn Phe Pro Val Leu
820 825 830

Glu Arg Leu Met Ile Arg Ser Cys Lys Asn Leu Lys Glu Ile Pro Ile
835 840 845

Glu Phe Ala Asp Ile His Thr Leu Gln Leu Ile Glu Leu Arg Glu Cys
850 855 860

Pro Pro Lys Leu Gly Glu Ser Ala Ala Arg Ile Gln Lys Glu Gln Glu
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885 890 895

Glu Ser Asp Ser Asp Ser Glu Glu His
900 905

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1 5 10 15

ttg aca ttc aat tcg ccg atg caa tct cta tcc tgt gat cac aga gaa 96
Leu Thr Phe Asn Ser Pro Met Gln Ser Leu Ser Cys Asp His Arg Glu
20 25 30

| | |
|---|-----|
| gaa ctt tgc gct ctt cgt gaa aaa gtt agt tcc ctg gaa gta ttt gtc | 144 |
| Glu Leu Cys Ala Leu Arg Glu Lys Val Ser Ser Leu Glu Val Phe Val | |
| 35 40 45 | |
| aag aac ttt gag aaa aac aat gtt ttt ggg gaa atg acg gat ttt gaa | 192 |
| Lys Asn Phe Glu Lys Asn Asn Val Phe Gly Glu Met Thr Asp Phe Glu | |
| 50 55 60 | |
| gta gag gta aga gaa gtt gca agt gct gct gaa tac aca att caa ctg | 240 |
| Val Glu Val Arg Glu Val Ala Ser Ala Ala Glu Tyr Thr Ile Gln Leu | |
| 65 70 75 80 | |
| aga cta aca gga act gta ctg gga gaa aat aaa agc cag aaa aaa aag | 288 |
| Arg Leu Thr Gly Thr Val Leu Gly Glu Asn Lys Ser Gln Lys Lys Lys | |
| 85 90 95 | |
| gcg cgt cga agg ttt cgt caa agc ctg caa caa gta gca gag gac atg | 336 |
| Ala Arg Arg Arg Phe Arg Gln Ser Leu Gln Gln Val Ala Glu Asp Met | |
| 100 105 110 | |
| gat cat atc tgg aaa gag tcg aca aag atc caa gat aaa gga aaa caa | 384 |
| Asp His Ile Trp Lys Glu Ser Thr Lys Ile Gln Asp Lys Gly Lys Gln | |
| 115 120 125 | |
| gta tca aag gaa tca ttg gtt cat gat ttt tca agt tca aca aac gat | 432 |
| Val Ser Lys Glu Ser Leu Val His Asp Phe Ser Ser Ser Thr Asn Asp | |
| 130 135 140 | |
| att ttg aag gtt aag aac aat atg gtt gga cgt gat gat caa agg aaa | 480 |
| Ile Leu Lys Val Lys Asn Asn Met Val Gly Arg Asp Asp Gln Arg Lys | |
| 145 150 155 160 | |
| cag ttg tta gaa gat ctg act-aga agc tac tct ggg gaa ccc aaa gtc | 528 |
| Gln Leu Leu Glu Asp Leu Thr Arg Ser Tyr Ser Gly Glu Pro Lys Val | |
| 165 170 175 | |
| atc ccg att gtc ggg atg gga ggc ata ggt aaa aca acc tta gca aaa | 576 |
| Ile Pro Ile Val Gly Met Gly Gly Ile Gly Lys Thr Thr Leu Ala Lys | |
| 180 185 190 | |
| gaa gtt tac aat gat gaa tca att cta tgc cgt ttt gat gtt cat gcc | 624 |
| Glu Val Tyr Asn Asp Glu Ser Ile Leu Cys Arg Phe Asp Val His Ala | |
| 195 200 205 | |
| tgg gct acc ata tct caa cag cac aac aaa aag gaa att ttg ctg ggc | 672 |
| Trp Ala Thr Ile Ser Gln Gln His Asn Lys Lys Glu Ile Leu Leu Gly | |
| 210 215 220 | |
| ctt ctg cat tcc aca atc aaa atg gat gac agg gtt aag atg att ggt | 720 |
| Leu Leu His Ser Thr Ile Lys Met Asp Asp Arg Val Lys Met Ile Gly | |
| 225 230 235 240 | |
| gaa gca gag cta gca gac atg tta cag aaa agt tta aag aga aag agg | 768 |
| Glu Ala Glu Leu Ala Asp Met Leu Gln Lys Ser Leu Lys Arg Lys Arg | |
| 245 250 255 | |
| tac tta att gtc ttg gat gat atc tgg agt tgt gaa gtg tgg gat ggc | 816 |
| Tyr Leu Ile Val Leu Asp Asp Ile Trp Ser Cys Glu Val Trp Asp Gly | |
| 260 265 270 | |

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| | |
|---|------|
| gtg aga cga tgc ttt cca act gaa gac aat gca ggg agt cga ata ctg | 864 |
| Val Arg Arg Cys Phe Pro Thr Glu Asp Asn Ala Gly Ser Arg Ile Leu | |
| 275 280 285 | |
| ttg act acc cgt aat gat gaa gta gct tgt tat gct ggt gta gag aat | 912 |
| Leu Thr Thr Arg Asn Asp Glu Val Ala Cys Tyr Ala Gly Val Glu Asn | |
| 290 295 300 | |
| ttt tct ttg cgg atg agc ttc atg gat caa gat gag agt tgg agt ctt | 960 |
| Phe Ser Leu Arg Met Ser Phe Met Asp Gln Asp Glu Ser Trp Ser Leu | |
| 305 310 315 320 | |
| ttc aaa agt gca gca ttt tca agt gaa gca tta cca tat gag ttc gag | 1008 |
| Phe Lys Ser Ala Ala Phe Ser Ser Glu Ala Leu Pro Tyr Glu Phe Glu | |
| 325 330 335 | |
| act gtt gga aag caa atc gca gat gaa tgt cac ggg tta cca cta act | 1056 |
| Thr Val Gly Lys Gln Ile Ala Asp Glu Cys His Gly Leu Pro Leu Thr | |
| 340 345 350 | |
| att gtc gtg gtt gca ggg ctt ctc aaa tct aaa agg aca ata gaa gat | 1104 |
| Ile Val Val Val Ala Gly Leu Leu Lys Ser Lys Arg Thr Ile Glu Asp | |
| 355 360 365 | |
| tggtg aaa act gtt gct aaa gat gtc aag tca ttc gtc aca aat gat cct | 1152 |
| Trp Lys Thr Val Ala Lys Asp Val Lys Ser Phe Val Thr Asn Asp Pro | |
| 370 375 380 | |
| gat gaa cga tgt tca cgt gtg ctt ggg ttg agt tac gat cac ttg aca | 1200 |
| Asp Glu Arg Cys Ser Arg Val Leu Gly Leu Ser Tyr Asp His Leu Thr | |
| 385 390 395 400 | |
| agc gat cta aaa aca tgt ctt ctg cat ttc gga att ttt cca gaa gac | 1248 |
| Ser Asp Leu Lys Thr Cys Leu Leu His Phe Gly Ile Phe Pro Glu Asp | |
| 405 410 415 | |
| agt gat att cca gtg aag aat ttg atg aga tca tgg atg gct gag ggg | 1296 |
| Ser Asp Ile Pro Val Lys Asn Leu Met Arg Ser Trp Met Ala Glu Gly | |
| 420 425 430 | |
| ttc ctg aag ttg gaa aat gat ttg gaa gga gag gtt gag aag tgt ttg | 1344 |
| Phe Leu Lys Leu Glu Asn Asp Leu Glu Gly Glu Val Glu Lys Cys Leu | |
| 435 440 445 | |
| caa gag ctt gtc gat aga tgt cta gtc ctc gtc agc aag aga agt cga | 1392 |
| Gln Glu Leu Val Asp Arg Cys Leu Val Leu Val Ser Lys Arg Ser Arg | |
| 450 455 460 | |
| gat gga aca aaa att aga tca tgt aag gtt cat gat cta ata tat gac | 1440 |
| Asp Gly Thr Lys Ile Arg Ser Cys Lys Val His Asp Leu Ile Tyr Asp | |
| 465 470 475 480 | |
| ctg tgc gtg aga gaa gtt caa agg gag aac att ttt atc atg aac gac | 1488 |
| Leu Cys Val Arg Glu Val Gln Arg Glu Asn Ile Phe Ile Met Asn Asp | |
| 485 490 495 | |
| att gtt ctt gac gta tca tat cca gaa tgt tca tat ctc tgt atg tat | 1536 |
| Ile Val Leu Asp Val Ser Tyr Pro Glu Cys Ser Tyr Leu Cys Met Tyr | |
| 500 505 510 | |
| aaa atg cag ccc ttt aag cgc gtg act ggt gat gaa att aat tat tgt | 1584 |

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| | |
|---|-------------|
| Lys Met Gln Pro Phe Lys Arg Val Thr Gly Asp Glu Ile Asn Tyr Cys | |
| 515 | 520 525 |
| ccc tat ggt ctt tat agg gct ctt ctt acc cct gta aat cgt cag ttg | 1632 |
| Pro Tyr Gly Leu Tyr Arg Ala Leu Leu Thr Pro Val Asn Arg Gln Leu | |
| 530 | 535 540 |
| aga gat cat gac aac aac aat ctt ttg aaa cga acc cat tct gtt ttc | 1680 |
| Arg Asp His Asp Asn Asn Asn Leu Leu Lys Arg Thr His Ser Val Phe | |
| 545 | 550 555 560 |
| tct ttt cat ctt gag cct tta tat tat gtt ctc aaa tca gag gtt gtt | 1728 |
| Ser Phe His Leu Glu Pro Leu Tyr Tyr Val Leu Lys Ser Glu Val Val | |
| 565 | 570 575 |
| cat ttc aaa tta ctc aaa gtc ttg gag ctg aga cac aga cag att gat | 1776 |
| His Phe Lys Leu Leu Lys Val Leu Glu Leu Arg His Arg Gln Ile Asp | |
| 580 | 585 590 |
| ggt ttc cct cga gag ata cta agc ctc atc tgg ttg agg tac cta tca | 1824 |
| Gly Phe Pro Arg Glu Ile Leu Ser Leu Ile Trp Leu Arg Tyr Leu Ser | |
| 595 | 600 605 |
| ttg ttc agc tat ggg aat ttc gat gta cct cca gaa att tgc agg tta | 1872 |
| Leu Phe Ser Tyr Gly Asn Phe Asp Val Pro Pro Glu Ile Cys Arg Leu | |
| 610 | 615 620 |
| tgg aat ctg cag aca ttc att gtt caa cgg ttt cga tca gat ata ata | 1920 |
| Trp Asn Leu Gln Thr Phe Ile Val Gln Arg Phe Arg Ser Asp Ile Ile | |
| 625 | 630 635 640 |
| att ttt gct gag gaa att tgg gaa cta atg caa tta agg cat ctt aaa | 1968 |
| Ile Phe Ala Glu Glu Ile Trp Glu Leu Met Gln Leu Arg His Leu Lys | |
| 645 | 650 655 |
| ctg ccc aga ttt tat ttg cca gat tgc cca agt gga tct gtt gac aaa | 2016 |
| Leu Pro Arg Phe Tyr Leu Pro Asp Cys Pro Ser Gly Ser Val Asp Lys | |
| 660 | 665 670 |
| gga agg cac ttg gat ttt tca aac tta caa act att tct tac ttg tct | 2064 |
| Gly Arg His Leu Asp Phe Ser Asn Leu Gln Thr Ile Ser Tyr Leu Ser | |
| 675 | 680 685 |
| cca cgt tgt tgc acg aag gag gtt att atg ggg att cag aat gtc aaa | 2112 |
| Pro Arg Cys Cys Thr Lys Glu Val Ile Met Gly Ile Gln Asn Val Lys | |
| 690 | 695 700 |
| aaa tta gga atc agt gga aat aag gat gac tat aaa agt ttt cgg gac | 2160 |
| Lys Leu Gly Ile Ser Gly Asn Lys Asp Asp Tyr Lys Ser Phe Arg Asp | |
| 705 | 710 715 720 |
| tct ggg ctt ccc aac aat ctt gtc tat ctg cag caa ctt gaa ata ttg | 2208 |
| Ser Gly Leu Pro Asn Asn Leu Val Tyr Leu Gln Gln Leu Glu Ile Leu | |
| 725 | 730 735 |
| agt ctt ata tct gtt gat tat agc ctt ttg cca gtg atc att tca agt | 2256 |
| Ser Leu Ile Ser Val Asp Tyr Ser Leu Leu Pro Val Ile Ile Ser Ser | |
| 740 | 745 750 |
| gca aaa gct ttt cca gca acg ctc aag aag ttg aag ttg gaa aga act | 2304 |
| Ala Lys Ala Phe Pro Ala Thr Leu Lys Lys Leu Lys Leu Glu Arg Thr | |

| 755 | 760 | 765 | |
|---|-----|-----|------|
| tat cta agc tgg tca tac ttg gac atc ata gct gag ttg cct aac ctt | | | 2352 |
| Tyr Leu Ser Trp Ser Tyr Leu Asp Ile Ile Ala Glu Leu Pro Asn Leu | | | |
| 770 | 775 | 780 | |
| gag gtg ctg aag ctg atg gat gac gct tgt tgt ggt gaa gaa tgg cat | | | 2400 |
| Glu Val Leu Lys Leu Met Asp Asp Ala Cys Cys Gly Glu Glu Trp His | | | |
| 785 | 790 | 795 | 800 |
| cca att gtt atg gga ttt aat cga ttg aag ctt ttg cta att aaa tat | | | 2448 |
| Pro Ile Val Met Gly Phe Asn Arg Leu Lys Leu Leu Ile Lys Tyr | | | |
| | 805 | 810 | 815 |
| agt ttt ctc aag ttc tgg aaa gcc aca aat gac aat ttt cct gtc ctt | | | 2496 |
| Ser Phe Leu Lys Phe Trp Lys Ala Thr Asn Asp Asn Phe Pro Val Leu | | | |
| | 820 | 825 | 830 |
| gag cgc ctc atg att aga agt tgc aaa aat ttg aaa gag ata ccc att | | | 2544 |
| Glu Arg Leu Met Ile Arg Ser Cys Lys Asn Leu Lys Glu Ile Pro Ile | | | |
| | 835 | 840 | 845 |
| gag ttt gca gat ata cac aca cta cag ctg att gag tta aga gag tgt | | | 2592 |
| Glu Phe Ala Asp Ile His Thr Leu Gln Leu Ile Glu Leu Arg Glu Cys | | | |
| | 850 | 855 | 860 |
| cct ccc aaa ctt ggg gaa tct gct gca cga att cag aaa gaa caa gaa | | | 2640 |
| Pro Pro Lys Leu Gly Glu Ser Ala Ala Arg Ile Gln Lys Glu Gln Glu | | | |
| 865 | 870 | 875 | 880 |
| gac ctc gga aac aac cct gtg gat gtt cgt atc tca aat cca ttg aag | | | 2688 |
| Asp Leu Gly Asn Asn Pro Val Asp Val Arg Ile Ser Asn Pro Leu Lys | | | |
| | 885 | 890 | 895 |
| gag agt gat tct gat tca gaa gaa cat tag | | | 2718 |
| Glu Ser Asp Ser Asp Ser Glu Glu His | | | |
| | 900 | 905 | |
| | | | |
| <210> 5 | | | |
| <211> 25 | | | |
| <212> DNA | | | |
| <213> Artificial Sequence | | | |
| | | | |
| <220> | | | |
| <223> Description of Artificial Sequence: Primer 1 | | | |
| | | | |
| <400> 5 | | | |
| caaataatttc ttggagtga tttga | | | |
| 25 | | | |
| | | | |
| <210> 6 | | | |
| <211> 25 | | | |
| <212> DNA | | | |
| <213> Artificial Sequence | | | |
| | | | |
| <220> | | | |
| <223> Description of Artificial Sequence: Primer 2 | | | |
| | | | |
| <400> 6 | | | |
| aaaactaaac tggttgtctc atcgt | | | |
| 25 | | | |

<210> 7
<211> 25
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer 3

<400> 7
atggctcatg caagtgtggc ttctc

25

<210> 8
<211> 25
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer 4

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25

<210> 9
<211> 2053
<212> DNA
<213> Capsicum annuum

<400> 9
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agacaaatat atgtacatga gttagtacaa ttctgtagaa aaaatcaaca ttctgttgac 120
caagaaaatt attagtattt tttttttaa aaagtagttt gggaaagtta gtatatgtaa 180
cattcttatt ttcttgtagc ttagtaatgg atcaagcttt ttagtatttt tatgacgata 240
ttacaataac aacaacaaca tatttagtga attttcatag gtgagatata tgatctaaga 300
cgatattgca tacataaaaa atcttatgga atattggaat agtataataa ggtcacaagt 360
ggaacaataa ttatttactt agattagaat attattgggg taatgacttt tgggtataata 420
agtcaatgaa tgatgtgaaa tttgggtgaac atgttttagat aatttaaata caatttgaca 480
agtgatgata caaattgacc aagtcattta agcttataaa tttgataaca ctttattaat 540
tcttgattct tctaaaagtc aatctaattg gtttcatgtt tggttttcat tgtttctctt 600
ttttcctttg actctaaata gaagggtggt aggttactaa aaaggagtgt gtcttattct 660
ggtagatagg agtgctttgt tttgggtatcc gtgctagtag tcatagcggt aagcttgtag 720
tgtcttggtt gtggagtttt gataataatt attgtttcag ataggtctat tggaatacta 780
cttttttttg ttaactattt tttgtcttgt tatttgtgca agtagtcata gtactatacc 840
tgtactatta tttgttctgt tattagatgt ccgtaaagat tgtgtcctct catgagcatg 900

gatacttggt cttccatag agaaaaatta tgattgccag caagtttaat cagaagttgg 960
gtaaccgagt tgaattgaac aagattggtg aagttggttg catcgaggtt gctaacagag 1020
agagagagag agagagccat ttctgatggt tgggtaaaaa aaatcttaga actccgtgag 1080
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tactgttata gactgctgat gctagttcag cacactaccg tttattcata aatgtaaatg 1560
tattaccttc tttgcagctc atttcttgaa ttagaaaatt gttgttagtt gagatgtaat 1620
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